Claims:

1. A shock absorbing steering column apparatus provided with; an outer column one part of which in the axial direction thereof is fixed by welding to a bracket, so that the outer column is supported on a vehicle body by means of the bracket; and an inner column one end portion of which is inserted into the inside of one end portion of the outer column; and in the case where a large load in the axial direction is applied between the outer column and the inner column, the dimension in the axial direction is made contractible by means of a mutual shift in the relative positions of the outer column and the inner column in the axial direction, wherein

engaging portions that have interference are provided in one part in the circumferential direction of an overlap portion where the outer column and the inner column overlap in the radial direction, and a position of the bracket is matched in relation to the axial direction with the overlap portion, and a welding place of the bracket and the outer column is in a position separated from the engaging portions of the overlap portion.

2. A shock absorbing steering column apparatus according to claim 1, wherein the place where the bracket and the outer column are welded, is positioned furthest in the circumferential direction from the engaging portion of the overlap portion.

3. A shock absorbing steering column apparatus according to claim 1, wherein the engaging portions that have interference are provided in a plurality of positions around the circumferential direction in the overlap portion in which the outer column and the inner column overlap in the radial direction, and in the case where it is assumed that the overlap portion is divided into two in a diametric direction, each of the engaging portions exists in a state biased towards a position away from the divided section, and the place where the bracket and the outer column are welded, is in the vicinity of the engaging portion existing on one of the sides of the overlap portion which is assumed to have been divided.

4. A shock absorbing steering column apparatus provided with; an outer column one part of which in the axial direction thereof is fixed by welding to a bracket, so that the outer column is supported on a vehicle body by means of the bracket; and an inner column one end portion of which is inserted into the inside of one end portion of the outer column; and in the case where a large load in the axial direction is applied between the outer column and the inner column, the dimension in the axial direction is made contractible by means of a mutual shift in the relative positions of the outer column and the inner column in the axial direction, wherein

engaging portions that have interference are provided in a plurality

of positions around the circumferential direction in an overlap portion in which the outer column and the inner column overlap in the radial direction, and in the case where it is assumed that the overlap portion is divided into two in a diametric direction, each of the engaging portions exists in a state biased towards a position away from the divided section, and the position of the bracket is matched in the axial direction with the overlap portion, and the place where the bracket and the outer column are welded, is on the engaging portion existing on one of the sides of the overlap portion which is assumed to have been divided.

5. A shock absorbing steering column apparatus according to any one of claim 1 through claim 4, wherein at each of the parts where the engaging portions exist in relation to the axial direction of the overlap portion, each of the engaging portions is respectively provided in two places in relation to the circumference direction, and each of the engaging portions is arranged in symmetry about the central axis of the outer column.

6. A shock absorbing steering column apparatus according to either one of claim 3 and claim 4, wherein the respective engaging portions exist unevenly in relation to the circumferential direction.

7. shock absorbing steering column apparatus according to claim 6, wherein the engaging portions exist in four places in relation to the

circumferential direction, and an interval in relation to the circumferential direction between engaging portions that exist astride an imaginary line orthogonal to the direction of division is made smaller than an interval in relation to the circumferential direction between engaging portions that exist astride an imaginary line in the direction of division.

8. A shock absorbing steering column apparatus according to claim 6, wherein the engaging portions exist in three places in relation to the circumferential direction, and two of the places are disposed on one side in the case where a division is assumed to have been made, astride an imaginary line orthogonal to the direction of division, and the other one place is disposed on the other side of the division on the imaginary line orthogonal to the direction of division, and an interval in the circumferential direction between the engaging portions at the two places is made smaller than the respective intervals in the circumferential direction between the engaging portions in these two places and the engaging portion in the other one place.

9. A shock absorbing steering column apparatus according to any one of claim 1 through claim 8, wherein at least one member of the outer column and the inner column is a base pipe on which surface a finishing process has not been carried out.

10. An electric power steering apparatus provided with: a steering shaft, on the rear end of which a steering wheel is fixed; a steering column through which the steering shaft can be freely inserted; and an electric motor that imparts a force to the steering shaft in a rotational direction according to the flow of current, wherein the steering column is a shock absorbing steering column apparatus according to any one of claim 1 through claim 9.

11. A shock absorbing steering column apparatus provided with; an outer column, and an inner column one end portion of which is inserted into the inside of one end portion of the outer column; and in the case where a large load in the axial direction is applied between the outer column and the inner column, the dimension in the axial direction is made contractible by means of a mutual shift in the relative positions of the outer column and the inner column in the axial direction, wherein

engaging portions that have interference are provided in a plurality of positions around the circumferential direction in an overlap portion in which the outer column and the inner column overlap in the radial direction, and each of the engaging portions is arranged unevenly in relation to the circumferential direction.

12. A shock absorbing steering column apparatus according to claim 11, wherein the interference of the respective engaging portions is made uneven.

13. A shock absorbing steering column apparatus according to claim 11, wherein the arrangements of the respective engaging portions are biased in the vertical direction in an installed state.

14. A shock absorbing steering column apparatus according to either one of claim 12 and claim 13, wherein among the engaging portions, the interference of the engaging portions arranged in positions biased in the vertical direction in the assembled state is made larger than the interference of the engaging portions arranged in other positions.

15. A shock absorbing steering column apparatus according to any one of claim 11 through claim 14, wherein the engaging portions positioned unevenly with respect to the circumferential direction respectively exist in positions separated in the axial direction of the overlap portion of the outer column and the inner column, and of each of the engaging portions, the number of engaging portions upon which the bending force acts at the time of a collision is made to be greater than the number of the other engaging portions.

16. A shock absorbing steering column apparatus according to any one of claim 11 through claim 15, wherein the engaging portions positioned unevenly with respect to the circumferential direction respectively exist in positions separated in the axial direction of the overlap portion of the outer

column and the inner column, and of each of the engaging portions, the area of the engaging portions on which the bending force acts at the time of a collision is made greater than the area of the other engaging portions.

17. A shock absorbing steering column apparatus according to claim 16, wherein an axial direction dimension of the engaging portion on which the bending force acts at the time of a collision is made greater than the axial direction dimension of the other engaging portions.

18. A shock absorbing steering column apparatus according to any one of claim 11 through claim 17, wherein the engaging portions are constructed by forming protrusions in a plurality of positions around the circumferential direction of the member of either one of the outer column and the inner column, and engaging the respective protrusions with the other member in a state having interference.

19. A shock absorbing steering column apparatus according to any one of claim 11 through claim 18, wherein a spacer manufactured from low friction material is arranged between an inner circumference surface of the outer column and an outer circumference surface of the inner column, so that the respective engaging portions are engaged through the spacer.

20. A shock absorbing steering column apparatus according to any one of claim 11 through claim 18, wherein at least one of the circumference

surfaces of the inner circumference surface of the outer column and the outer circumference surface of the inner column is subjected to low friction surface treatment on the part where it engages with the other circumference surface.

21. An electric power steering apparatus provided with: a steering shaft, on the rear end of which a steering wheel is fixed; a steering column through which the steering shaft can be freely inserted; and an electric motor that imparts a force to the steering shaft in a rotational direction according to the flow of current, wherein the steering column is a shock absorbing steering column apparatus according to any one of claim 11 through claim 20.

22. A shock absorbing steering column apparatus provided with; an outer column, and an inner column one end portion of which is inserted into the inside of one end portion of the outer column; and in the case where a large load in the axial direction is applied between the outer column and the inner column, the dimension in the axial direction is made contractible by means of a relative shift in the relative positions of the outer column and the inner column in the axial direction, wherein

engaging portions that have interference are provided in a plurality of places positioned at even intervals in relation to the circumferential direction, in one part of an overlap portion where the one end portion of the

outer column and the one end portion of the inner column overlap in the radial direction, and among the respective engaging portions, the interference of the engaging portions positioned in the vertical direction or positioned in the vicinity of the vertical direction in an installed state on a vehicle, is greater than the interference of the other engaging portions.

23. A shock absorbing steering column apparatus provided with; an outer column, and an inner column one end portion of which is inserted into the inside of one end portion of the outer column; and in the case where a large load in the axial direction is applied between the outer column and the inner column, the dimension in the axial direction is made contractible by means of a relative shift in the relative positions of the outer column and the inner column in the axial direction, wherein

engaging portions that have interference are provided in a plurality of places positioned at even intervals in relation to the circumferential direction, in one part of an overlap portion where the one end portion of the outer column and the one end portion of the inner column overlap in the radial direction, and among the respective engaging portions, the surface area of the engaging portions positioned in the vertical direction or positioned in the vicinity of the vertical direction in an installed state on a vehicle, is greater than the surface area of the other engaging portions.

24. A shock absorbing steering column apparatus according to claim 23, wherein an axial direction length dimension of the engaging portions positioned in the vertical direction or positioned in the vicinity of the vertical direction in an installed state on a vehicle, is made greater than the axial direction length dimension of the other engaging portions.

25. A shock absorbing steering column apparatus according to either one of claim 23 and claim 24, wherein a circumferential direction length dimension of the engaging portions positioned in the vertical direction or positioned in the vicinity of the vertical direction in an installed state on a vehicle, is made greater than the circumferential direction length dimension of the other engaging portions.

26. A shock absorbing steering column apparatus according to any one of claim 23 through claim 25, wherein the interference of the engaging portions positioned in the vertical direction or positioned in the vicinity of this vertical direction in an installed state on a vehicle, is made greater than the interference of the other engaging portions.

27. A shock absorbing steering column apparatus according to any one of claim 22 through claim 26, wherein the engaging portions that each have interference are provided in a plurality of places positioned at even intervals in relation to the respective circumferential directions in two positions

mutually separated in the axial direction in the overlap portion where one end portion of the outer column and one end portion of the inner column overlap in the radial direction, and of each of these engaging portions, the surface areas of the engaging portions positioned in the part upon which the bending force acts at the time of a collision, are made greater than the surface areas of other engaging portions.

28. A shock absorbing steering column apparatus provided with; an outer column, and an inner column one end portion of which is inserted into the inside of one end portion of the outer column; and in the case where a large load in the axial direction is applied between the outer column and the inner column, the dimension in the axial direction is made contractible by means of a relative shift in the relative positions of the outer column and the inner column in the axial direction, wherein

engaging portions that each have interference are provided in a plurality of places positioned at even intervals in relation to the respective circumferential directions in two positions mutually separated in the axial direction in an overlap portion where the one end portion of the outer column and the one end portion of the inner column overlap in the radial direction, and of each of these engaging portions, the surface areas of the engaging portions positioned in the part upon which the bending force acts

at the time of a collision, are made greater than the surface areas of other engaging portions.

29. A shock absorbing steering column apparatus according to either one of claim 27 and claim 28, wherein an axial direction length dimension of the engaging portions positioned in the part upon which the bending force acts at the time of a collision, is made greater than an axial direction length dimension of the other engaging portions.

30. A shock absorbing steering column apparatus according to any one of claim 27 through claim 29, wherein a circumferential direction length dimension of the engaging portions positioned in the part upon which the bending force acts at the time of a collision, is made greater than a circumferential direction length dimension of the other engaging portions.

31. A shock absorbing steering column apparatus according to any one of claim 22 through claim 30, wherein the engaging portions are constructed by forming protrusions which project in the radial direction, in a plurality of positions around the circumferential direction of the member of either one of the outer column and the inner column, and engaging these respective protrusions with the other member in a state having interference.

32. A shock absorbing steering column apparatus according to any one of claim 22 through claim 31, wherein a spacer manufactured from low

friction material is arranged between an inner circumference surface of the outer column and an outer circumference surface of the inner column, so that the respective engaging portions are engaged through the spacer.

33. A shock absorbing steering column apparatus according to any one of claim 22 through claim 31, wherein at least one of the circumference surfaces of the inner circumference surface of the outer column and the outer circumference surface of the inner column are subjected to low friction surface treatment on the part where it engages with the other circumference surface.

34. An electric power steering apparatus provided with: a steering shaft, on the rear end of which a steering wheel is fixed; a steering column through which this steering shaft can be freely inserted; and an electric motor that imparts a force to this steering shaft in a rotational direction according to the flow of current, wherein the steering column is a shock absorbing steering column apparatus according to any one of claim 22 through claim 33.